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UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

# Report of the Ad Hoc Working Group on Interrelationship between Investment and Technology Transfer on its first session

held at the Palais des Nations, Geneva,
from 25 to 29 January 1993

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## INTRODUCTION

1. The Ad Hoc Working Group on Interrelationship between Investment and Technology Transfer, established in accordance with paragraph 79 of the Cartagena Commitment, held its first session at the Palais des Nations, Geneva, from 25 to 29 January 1993*. In the course of the session, the Working Group held four plenary meetings.

Opening statement

2. The Deputy to the Secretary-General of UNCTAD recalled that the Cartagena Commitment recognized the link between technological capability and social and economic development. It particularly stressed that national technology policies required a proper policy framework to promote entrepreneurship and encourage technological transfers including through foreign investment. Stress was also laid on incentives for domestic capacity-building and innovation, and developed countries were called upon to facilitate access to technology by developing countries. Other new areas of attention included the technological requirements of countries undergoing the process of transition to market economies.

3. Accordingly, the terms of reference of the Ad Hoc Working Group raised a number of substantive issues such as the linkage between investment and transfer and development of technology, the contribution of foreign direct investment (FDI) to the transfer of technology, the implications of the protection of intellectual property rights for investment, the impact of technological change on trade competitiveness and national capacities for innovation and adaptation, and the transfer and development of environmentally sound technologies which have an impact on competitiveness and development.

4. The material prepared by the secretariat highlighted only some of the main issues in a desire to stimulate discussion in the Working Group in its elaboration of the work programme for the coming months. It also outlined possibilities for carrying out the work. It was, however, up to the experts to identify the priority areas on which to concentrate, and to decide on the time-table for future sessions as well as on work methods. He hoped that the work of the Group would culminate in a major report on the state-of-the-art in the area of investment and technology questions, including recommendations for action by governments, non-governmental actors and the international community as a whole.

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* For the terms of reference of the Ad Hoc Working Group, see Trade and Development Board decision 398 (XXXVIII), annex C.

Presentations made by specially invited experts at the 1st meeting, on 25 January 1993

5. Professor Charles Cooper, Director of the Institute of New Technologies (INTECH), United Nations University, referred to three main issues: (i) the evolution in the process of industrial competition; (ii) how problems of competition related to industrialization policies in developing countries; and (iii) implications for policy-making. There had been important shifts in the concept of competition, which had moved from a concept based on cost minimization with given technologies (price competition) to one based on continuously changing technologies in processes and products (innovative competition). The latter focused on the processes of technological learning within firms. Certain firms, by accumulating technological knowledge, were able to attain, and sometimes maintain, dominant positions in the market. Innovative competition, also drew attention to the long-term nature of this process of learning within the firm. It was the firm's history that determined its capabilities and competitive position, including its future perspectives. Thus, there was a whole range of firms at any one time within the same industry: the innovative firms, which initiated technology, but which constituted only a very small number in the industry; the imitative firms, which were the majority; and finally the laggards, which stayed technologically behind and could not compete in this new environment.

6. As to industrial policies in developing countries, nowadays they were mediated by two very important situations - by the emergence of innovative competition and by the opening of the economy. The rules of the game of industrialization policy had distinctly changed. One critical outcome was that industrialization was no longer simply a process of building up a protected national industrial base; rather, it was increasingly a process of achieving entry into the world industry, which was a very different objective from that of import substitution within a protected market. If the process were to be sustained, it required almost always the accumulation of technological capabilities within the firm. That was a far more important priority in modern industrial systems than it had ever been in the import-substituting economies of the past.

7. At the same time, the more innovative the industry, the more internalized forms of technology transfer were to be expected (i.e. FDI). A central theme of industrialization policy would increasingly become the terms under which imitation could be accomplished in developing countries' industries, either through foreign direct investment or other modes of technology transfer. Another important policy issue resulted from the impact that different methods of imitating had on the processes of technological capability accumulation.

8. As for policies, it should first be borne in mind that there was a spectrum of industries of different degrees of innovativeness and also countries with limited technological capabilities. The real windows for entry into the world market for the latter were in non-innovative and relatively less innovative sectors. However, the low-technology spectrum of industries was narrowing down. The fact that modern technology systems were spreading even in old non-innovative sectors raised very serious problems for industrial policy in technologically weak countries.

9. In this environment, the role of the State would be to encourage mechanisms of technology transfer that were more consistent with local capabilities (i.e. mechanisms of imitation). Not much was known about this subject because, within the import substitution system, it was not sufficiently focused on. States would also be very concerned with methods of developing technological capability. This required an emphasis on technical education and on the understanding of learning processes within firms. Finally, the State in many countries would seek selective forms of intervention to support those firms that were entering innovative world industries (the modern version of infant industry protection).

10. Mr. Juan Rada, Vice-president (Strategic Alliances), Digital Equipment Corporation International (Europe), addressed three major issues that affected competition policies: (i) the clustering of technologies and strategic alliances; (ii) the role of capital markets in shaping investment and innovation capabilities; and (iii) technology as an increasingly important factor of protectionism after the Uruguay Round. With regard to point (i) he said that today there were clusters of technologies rather than individual technologies, a situation which rendered the management of technology more complex. Companies could no longer operate as single entities within an industry since they required simultaneously several technologies in order to be viable. Firms therefore formed strategic alliances and created clusters of cooperating companies. This situation raised several problems vis-à-vis competition policies within countries and internationally.

11. Furthermore, two contradictory trends - short technology cycles on the one hand and long product cycles on the other - coexisted. This also increased the complexity of the technology management.

12. With regard to point (ii) he emphasized the need to understand better how capital markets - from an equity perspective - encouraged or discouraged investment and technological capacity-building. For example, companies operating in Japan faced very different financial structures than did companies operating in the United States market. The Schumpeterian innovation theory based on entrepreneurship did not necessarily apply to Japan and Germany. The question was to explain why large companies like SONY were highly innovative and could compete very successfully on the international markets despite the fact they operated in countries which discouraged individual entrepreneurship, had highly hierarchical corporate structures, and were otherwise run by principles which went against the commonly accepted management perceptions in the United States. Part of the explanation could be found in the behaviour of equity markets. For example markets in Japan, Germany and Italy were more oriented towards investment than towards consumption; moreover, they privileged capital gains and punished dividends, a difference which was at the origin of the completely different logic in the decision-making process of companies. Moreover, the capital markets rewarded the stake holders (all of those who participate in the life of the corporation), rather than the share-holders. Banks and industry were regarded as having converging rather than conflicting interests. This enabled companies in Japan to have much higher debt-to-equity ratios than Western companies. Their cash flow permitted Japanese companies to invest in technology to a level that was not possible in Anglo-Saxon markets. Finally, extensive disclosure rules such as those applied in the United States, implied that companies were more administratively than business driven. He regretted

that, conforming to World Bank recommendations, Eastern European and developing economies today were copying the Anglo-Saxon system although the Japanese and German systems had proved far more successful.

13. With regard to point (iii), he asserted that, after the Uruguay Round, protectionism was likely to be based on technological content. He predicted that countries and regions would increasingly emphasize the technological content rather than the national content of the product. Therefore, the engineering and research capabilities promoted by foreign investment would become crucial in addition to the manufacturing capabilities.

14. Mr. Herbert Oberhänsli, Assistant for Economic Affairs to the Chairman, Nestlé S.A., referring mainly to Nestlé's experience and to the results of the survey undertaken by European industrialists, outlined the systems of cross-fertilization between economies at different stages of economic development, which stimulated the local knowledge creation in production and distribution. In this respect, the protection of brands was of the utmost significance because they stimulated product renovation. They were an international quality guarantee and a powerful instrument for market-oriented application of technical progress and for global market integration. An important aspect was the protection of intellectual property rights - not only of patents but also of trademarks. There should be adequate remuneration for brand use and for the technology transferred. He pointed out that the research activities of Nestlé, were carried out in 15 centres all over the world, 2 of them in developing countries.

15. An important impediment to technology transfer (where improvements had, however, been observed in the last six years) were the various licensing requirements that limited possible factorial access and influenced business decisions. Other impediments had been the tax system - not so much the level, but the structures - and price controls which were an important impediment to local development and to the transfer of technology. The behaviour of local private sectors was also important, and particularly helpful for the foreign investors when it was internationally-minded. Although there had been improvements in the last few years, it was important for technology transfer that improvements should be made in a coherent manner. The countries were moving so fast that sometimes it might even be difficult for the companies to be aware of all the improvements that were taking place in all important host countries of the developing world. The changes in investment conditions in the developing world had resulted in a considerable increase in absolute terms in foreign direct investment flows, particularly in 1991 and 1992. In relative terms there was an increase in the share of the overall foreign investments in the gross fixed capital formation of these countries.

16. One important element of change had been the higher share of local private investment in overall investments, which had increased since early 1980s from 60 per cent to nearly 70 per cent. Set against the corresponding figures for the industrialized world, this change was almost a revolution. As a result, there was higher investment-efficiency and better use of available resources. This meant higher efficiency in the use of technology and local technology creation, accompanied by a higher competitive position of local companies. It should be stressed that local investment was the key to the development of any country.

17. In conclusion, he said that countries had a need for an overall strategy for technological transformation. A good reference model had to be found in the process of liberalization that occurred in the developing countries which were most advanced in that respect. It was for the companies to bring additional investment to know-how creation and to linkages with the outside world.

Questions raised in connection with the expert presentations

18. In response to a question on whether it was still valid to distinguish between different European Community capital markets in the light of European monetary integration, Mr. Rada replied that this, indeed, was still one of the thorny problems that had to be resolved. In the end, the characteristics of the European equity market would depend on whether the financial capital of the EC would be Frankfurt or London. In his view, current trends indicated a bias in favour of what he called "the Rhine capitalism".

19. The representative of Colombia asked Mr. Rada how he perceived protection via technological content as opposed to local manufactured content in a situation where capital formation and sources were becoming increasingly internationalized.

20. Mr. Rada replied that historically, tariff barriers had not been reduced by an act of will of policy-makers, but rather because industries were no longer viable within national boundaries. A crucial issue today was what would be the types of mechanisms available to countries and regions after a significant tariff reduction. At present, technological capacity was a much more critical element in measuring the ability of countries to compete than was the manufacturing content. Thus, policy-makers needed to find ways - if possible in the form of a specific mechanism - of obliging international capital to shift the deployment of resources in terms of technological capacity.

21. The representative of Egypt asked why the World Bank favoured the Anglo-Saxon type of investment and whether the Anglo-Saxon capital market was more adaptable to developing countries than the Germano-Japanese model, and which corporations were better suited to adapt and absorb advanced technologies - the larger firms or the small and medium-size enterprises.

22. The representative of Chile asked whether the difference between the two types of capital markets was rooted in cultural elements or based rather on existing policies and regulations, and if and why the German and Japanese capital markets were more conducive to technological innovation.

23. Mr. Rada made two observations. First, there were many types of market economies which have had different rates of success. Thus, it was fundamental to realize that there were numerous ways to deal with the problems at hand. The crucial question was what type of capital market better served a significant process of systematic accumulation for development. The market differences were not fundamentally due to cultural or ethnic differences. It would be useful to hold a debate on the different models of market economies,

focusing on the fundamental question of how each model affected different levels of accumulation of capital and innovation. He presumed, however, that developing economies were better served by capital markets that encouraged capital gains and which had an investment rather than a consumption bias.

24. The representative of Bangladesh said that the discussion on the flow of foreign direct investment and technology transfer was not of particular interest to the least developed countries as there was little foreign investment in those countries and there was no innovation in the production of commodities. Therefore, the least developed countries could not maximize benefits from the export of commodities. He pointed out that, although the LDCs were providing many incentives, FDI was not flowing to these countries. In his view, non-economic factors might be responsible for this.

25. In response to the representative from Bangladesh, who had questioned the relevance of the discussion for least developed countries and the lack of innovations in respect of commodities, Mr. Rada asserted that the history of commodities showed that natural comparative advantages had been systematically eroded by science and technology (i.e. man-made products) since the mid-1970s. This was a worldwide trend and was thus of crucial importance for developing countries. Moreover, with the end of the cold war, geographic rather than political parameters had begun to dictate economic relationships, and this trend was expected to be more important in the future.

26. The representative of the Joint Inspection Unit wondered if the task of technology transfer could be achieved, considering that millions of dollars had already been spent by different agencies within the United Nations system to encourage the transfer of science and technology to developing countries. He also asked whether it was realistic to expect TNCs to transfer technology if this same technology could be used by their competitors to compete for market shares.

27. Professor Cooper said that low-income countries were also touched by technology issues. Any country with aspirations to competitive production in the industrial sector had to be concerned with processes of technical change. The costs of not staying efficient and competitive in an increasingly open world economy could be very high even in non-innovative sectors. With regard to building technological capacity, the first step was to build up imitative capability; the creation of innovative capacities might follow as a second step. The first step was not inferior to the second.

28. With regard to the question raised by the representative of the Joint Inspection Unit, Professor Cooper observed that it was the exception rather than the rule for innovative firms to maintain total control over their innovations. Firms privatized technology mainly in order to license or set up joint ventures. Thus, the fact that there were firms which exercised a high degree of control over innovative knowledge did not imply that this knowledge would not be available, although, it might indeed be very expensive.

29. The representative of Colombia wished to know what types of policies had served to stimulate research and development in developing countries. Mr. Oberhänsli replied that, with regard to industrial policy, those policy changes in favour of the local private sector and FDI had played a positive role. He considered as detrimental situations those in which host countries

had to compete with subsidies, particularly in R & D. A high share of private research, as in Japan and Switzerland, guaranteed that research was carried out in a market-oriented perspective. Access to other resources, such as credit, should also be liberalized.

30. The representatives of Norway and Bangladesh called for some differentiation in the issues confronting countries at different levels of development. While FDI was an important vehicle for technology transfer, it was pointed out that the bulk of investment went to and from the triad United States-Europe-Japan. The share of developing countries was small and also very unevenly distributed, with the LDCs receiving less than 0.1 per cent of total flows. The importance of finding policies and measures to prevent the further economic and technological marginalization of developing countries, and specifically the least developed countries was stressed. The representative of the United States maintained that the success of the NICs in increasing investment and technology flows could hold lessons for other developing countries.

31. The Chairman offered some insights into the Japanese experience of the 1950s and 1960s which were still relevant. During this period, the Japanese Government had scrutinized incoming FDI for its technical learning effect, as well as for its consequences for existing activities, employment, and industrial organization. He stressed that the Government played an active role.

32. The representative of the United Republic of Tanzania emphasized the importance of LDC concerns, such as finding ways to industrialize, augmenting the export production of manufactured goods, and creating backward linkages with agriculture, with a view to reducing the LDCs' dependence on commodity exports. He called for foreign investment that favoured labour-intensive techniques and the use of local inputs. Moreover, he expressed the view that transfer of technology to developing countries should take place on concessional terms.

33. The representative of Brazil inquired whether Nestlé's research centres mainly carried out product adaptation or whether they also did fundamental research. Moreover, he was interested in the criteria for the choice of location of these centres. Mr. Oberhänsli replied that research in Nestlé's two centres in developing countries was mostly applied, but that some fundamental research was also taking place. As vital criteria for the choice of location, he listed the existing operations in place, skilled local personnel, and regulations which did not inhibit the in- and out-flows of research outcomes. With regard to policy on the transfer of technology, he stated that Nestlé did not confine itself to transferring factories and machines, but also invested in training local staff. He added that he favoured a country-by-country rather than a general solution to the problem of attracting FDI.

34. In response to the representative of Colombia who had asked Mr. Rada to expand on the issue of environmental technology vis-à-vis the advancement in high-technological innovation, Mr. Rada said that he considered environmental concerns to be the single most important stimulus for research

during the 1990s. The growing emphasis on a cradle-to-grave approach required research in the area of de-manufacturing and recycling, as well as new types of technology.

35. With reference to the concerns expressed by the representative of Bangladesh, Professor Cooper said that LDCs should look at the experience of other countries, including countries such as India, in the area of technological capability-building. He cited the case of Japan, where for a long period, licensing had been given preference over FDI and technology transfer. He also stressed that high technology and innovation were not necessarily identical and that many innovations involved simple technologies.

## Chapter I

## ESTABLISHMENT OF THE WORK PROGRAMME OF THE WORKING GROUP

(Agenda item 3)

36. For its consideration of this item, the Ad Hoc Working Group had before it the following document:

"Issues for consideration in the establishment of the work programme" - note by the UNCTAD secretariat (TD/B/WG.5/2).

The following paper was also made available to the Working Group as a background document:

"The interrelationship between investment flows and technology transfer: an overview of the main issues" - paper prepared by Mr. Sanjaya Lall, Oxford University Institute of Economics and Statistics, in cooperation with the UNCTAD secretariat (UNCTAD/ITD/TEC/1).

37. The Director of International Trade Division felt that the deliberations of the Working Group were taking place against a background of important changes. Globalization, characterized, inter alia, by liberalization and a major technological revolution, were leading to significant changes in the international division of labour, international competitiveness, skill needs, organizational structures and technology support needs. Introducing the documents prepared by the secretariat, he said that numerous issues arose from the interactions between investment, technology transfer and development of technological capabilities.

38. Referring to the background document (UNCTAD/ITD/TEC/1), he said that the relevant issues, on the demand side, were the identification of the factors affecting the choice of the mode of technology transfer, the strategic interests of firms, and government policies, in particular those of host countries. On the supply side, there were macroeconomic, microeconomic and strategic factors which affected the decision of firms to undertake investment and transfer technology. The contribution of technology transfer to the development of national technological capabilities depended on the level of absorptive capacity of the receiving country. The skills, technical knowledge, organizational structure and specific incentive measures were among the factors which fostered this absorptive capacity. The exchange of experiences among member States would certainly enable the Working Group to draw appropriate recommendations and guidelines for the formulation and implementation of policies at the national as well as at the international levels and for international economic cooperation.

39. With regard to the secretariat note on the issues for consideration in the establishment of the work programme (TD/B/WG.5/2), suggestions and proposals were covered under the following broad headings: the policy environment; the role of economic agents; technological change, trade competitiveness and structural adjustment; the process of technological capability-building; technological indicators and environmentally sound technologies.

40. In conclusion, he said that the range of issues was wide, and it was for the Working Group itself to determine those areas on which it wished to concentrate its attention, taking into account the accumulated experience on technology, investment and trade-related issues in UNCTAD, as well as the work of other international and non-governmental organizations in the field.

41. The spokeswoman for the Asian Group (Philippines) was confident that the work programme on this issue would not only strengthen the promotion of technology transfer and cooperation among developed and developing countries, particularly the least developed among them, but would also enable the latter to participate actively and competitively in world trade in goods and services. Her Group proposed the following structure of priority areas:

(a) Policy environment: The impact of the modes of investment-related transfer of technology at the firm level might be further examined by looking at the forms of technology transfer. Work should be undertaken with regard to the analysis of success stories on investment-related transfer of technology. Intellectual property rights (IPR) was a sensitive issue in technology transfer arrangements which needed an adequate focus. There was a need to look at the differences or variations in IPR systems among countries to facilitate the adoption of technology transfer agreements. Under this subject, the sub-area that should be prioritized was biotechnology where there was not only ongoing debate as to the patentability of matters in this field but also considerable potential for active participation of developing countries as the major suppliers of biological resources.

(b) Role of economic agents: It would be important to look at the performance of different agents on the basis of the experience of developing countries. The government role should be studied, particularly areas where government intervention should be welcomed and those which should be governed by market forces.

(c) Technological change, trade competitiveness and structural adjustment: Adoption of new technologies could mean increased efficiency in the processes using raw materials exported particularly by the least developed countries (LDCs) and the substitution of new materials for traditional materials. In this, demand for key exports from developing countries would be reduced. On the other hand, developed economies had the edge on developing countries because they could easily adopt and make use of opportunities offered by new technologies. On trade competitiveness, the formation of regional trading blocs and their impact on investments, trade and technology transfer, should be studied. As regards structural adjustment programmes, a thorough understanding of their goals would help in reconciling the objectives of trade, investment, and industrial and technological development and thus facilitate the effective transfer of technology. Furthermore, the identification of structural adjustment programmes that influenced investment flows would deepen understanding of those successful programmes that had attracted more investment flows to "winners" among the restructuring developing countries.

(d) Process of technological capacity-building: Country studies which explained the role of technological capability-building in the rapid economic progress of some countries could also be carried out. They should identify macro and micro factors such as process of human resource formation, inflow of

foreign technologies, and the government's industrial, trade, and science and technology policies. Such studies should take into account the following points: (i) Implications for developing countries of the transfer of technology of obsolete technologies resulting from the shift of certain non-competitive industries to these countries from developed ones; (ii) Dependency of the local subsidiary on the parent transnational corporation (TNC) in the development of new products or the improvement of techniques and processes; (iii) conditions under which rapid absorption and gradual adaptation of foreign know-how could be effected; (iv) advantages of foreign direct investment as a mode technology transfer over other modes such as outright purchase of technology.

(e) Environmentally sound technologies: The Asian Group supported the work outlined in the secretariat's paper but stressed that this was an area where international cooperation was directly needed, in keeping with the mandates of Agenda 21.

42. In conclusion, she expressed the view that the entire work programme should be geared to the achievement of intermediate targets. Future work should achieve concrete targets such as the establishment of an investment-related technology information network, linking all countries. This network could store country experiences accessible to all countries, particularly the developing countries. It might include technology transfer-enhancing investment opportunities and environmentally-sound technologies freely given by authors or owners outside the ambit of the regime of intellectual property rights.

43. The representative of the United States of America said that the work of this Working Group was of great importance for the development of many countries. He proposed elements for the work programme that would allow the greatest benefit to participants, and in this connection he referred to the paper which had been circulated informally by his delegation to the Working Group. (For the text of the United States proposal, see annex ... below.) The Working Group could be a forum to hear the views of international experts, including those from the private sector, on what might be regarded as a mutually beneficial climate for investment and other vehicles for the transfer, absorption and generation of technology. The Group could also offer countries an ideal opportunity to share their own experiences in encouraging technology transfer and strengthening their own capacities in technology. He also suggested that the UNCTAD secretariat should update an earlier study on legal materials dealing with the transfer and development of technology, and conduct a survey of the literature on technology transfer.

44. The representative of Romania, said that her Government attached great importance to the issues to be addressed by the Working Group, which should contribute to the stimulation of investment and technology flows to the developing countries and to the countries in transition. She hoped that the recommendations adopted would be action-oriented. In this respect the following issues were of utmost importance: (1) the different modes of investment-related transfer of technology and the opportunities and challenges they presented for the technological development of developing countries and countries in transition; (2) the influence of the intellectual property rights protection on investment flows and the development of technological activities; (3) the role played by different actors such as Governments,

private enterprises, international organizations, in increasing investment flows, training and development of technological capabilities; (4) strategies of firms and existing modes of cooperation between home and host countries' enterprises on investment in research and development; (5) the influence of technological change on trade competitiveness, export competition and national capacities for innovation and adaptation; (6) structural adjustment, investment flows and mastery over imported and locally generated technology; (7) the role played by foreign investment in the privatization process under way in the countries in transition; (8) the effective modalities for promoting and facilitating the transfer and development of environmentally sound technologies to developing countries and countries in transition, including under concessional and preferential conditions; (9) the possibility of elaborating additional financial schemes and mechanisms which would help finance development, imports and the improvement of environmentally sound technologies; (10) the fields where technology-transfer-related international technical cooperation could be strengthened, both at intergovernmental and at enterprise level; (11) the reverse transfer of technology.

45. The representative of Norway recalled the important point that investments did not necessarily flow to where they were most needed. The Working Group should also address the problems facing countries that attracted little investment and few technology flows, without duplicating the work done in other bodies such as UNCTAD's own Ad Hoc Working Group on Investment and Financial Flows. He stressed that investments were not the only way to transfer technology. Notably in strategic fields, such as the food sector, there was an important role for international cooperation and technical assistance. Concerning environmentally sound technologies (ESTs), he underlined that their generation and dissemination were crucial factors for sustainable development. He shared the view that in coming years technological development would be largely driven by environmental concerns. However, ESTs were not always "cost cutting" technologies and their environmental soundness was not always a sufficient incentive for their adoption. Policies and measures to promote development and dissemination of ESTs represented therefore a very important challenge which in his view would lend itself to in-depth exploration in a seminar or workshop.

46. The representative of United Republic of Tanzania said that the LDCs attached great importance to UNCTAD's endeavours at evolving international policies and measures that would stimulate the transfer of technology from industrialized countries. The LDCs needed to acquire and apply technology to their development needs on an urgent basis. At the same time their limited technological capabilities were discouraging direct foreign investments. Unfortunately no clear mechanism had evolved with regard to transfer of technology. The Working Group could therefore endeavour to come up with innovative ways and means to ensure that, within the Cartagena mandate, developing countries would be able to acquire the technology needed for the revival of their economies. The attraction of these countries for the investor should not only be their factors of production, such as raw materials and cheap labour. It should also be realized that those countries aspired to attain a rapid pace of development - both industrial and agricultural - in order to generate employment and income growth. In view of their lower level of development, emphasis should be given to providing technologies which enhanced the LDCs' international competitiveness and were designed to increase their exports, particularly of processed manufactures and commodities.

47. It was quite obvious that effective transfer of technology could not take place in the absence of capabilities in basic sciences. Adequate stress had therefore to be laid on education in basic sciences and on an effective system of research in R & D centres in developing countries. Scientific skills could also be imported through technical and vocational training by means of technical assistance schemes which industrialized countries could make available to developing countries. In view of the restrictions imposed on the transfer of technology, the possibility should be explored of making those technologies which have fallen into the public domain, but which were still useful, available to the developing countries.

48. In pursuing rapid economic growth and particularly industrialization, control of environmental hazards should be taken into consideration. There should be especially strict controls on air and water pollution by industries. Energy-efficient and environmentally sound technologies should be used and the industrialized countries should agree to transfer such technologies to the South on terms which the developing countries could afford.

49. The representative of Hungary stressed the worldwide importance of activities in the field of foreign direct investment and technology transfer. The investment and technology needs of developing countries must not be grouped together with those of the countries in transition as the latter faced distinct problems and had special needs. This was exemplified by the changes Hungary was currently undergoing and the investment needed for the attainment of extensive liberalization of imports and prices, as well as of the development of human resources. These efforts could be significantly supported if cooperation between developing countries, developed countries and countries in transition were enhanced.

50. The representative of The Netherlands said that UNCTAD's activities should be focused on the points not covered by other agencies of the United Nations system such as, for instance, UNIDO, UNEP or UNCTC. At the same time, UNCTAD should take advantage as appropriate, of activities undertaken in this very broad field by other organizations. It could be interesting to look at OECD's technology-related activities, notably the so-called Technology Economy Programme. UNCTAD, in carrying out its work, could organize meetings bringing together different actors involved in the broad area of investment and technology transfer, such as representatives of the academic community and of the private and public sectors including different organizations of the United Nations system. This was not a substitute, however, for the specific substantial contribution which UNCTAD should deliver, based on the work of the Ad Hoc Working Group.

51. The representative of the United Nations Industrial Development Organization (UNIDO) outlined some activities carried out by this organization in the area of investment and technology transfer which showed interlinkages with the mandate of the Ad Hoc Working Group. It was noted, however, that there was no duplication with UNCTAD's activities since UNIDO's work in those fields had a business-oriented focus. He mentioned some selected activities executed by UNIDO in the area of investment promotion in developing countries, including the organization of country forums for business opportunities; assistance in setting up institutions with functions of promoting and facilitating the flows of technology and assisting local enterprises in

dealing with technology acquisition; and the organization of training programmes and courses on contract negotiation for developing country's officials and entrepreneurs. UNIDO was interested in enhancing its cooperation with UNCTAD in the field of investment and technology transfer, and in particular in connection with the implementation of the programme of work being established for the Ad Hoc Working Group. It stood ready to explore fully the complementarities of each organization's programmes.

52. The representative of China said that the concerns about investment flows and transfer of technology were common to both developing as well as developed countries. Foreign direct investment and the establishment of transnational corporations were conducive to the increase of technology flows to developing countries. Thus, the slowdown of investment flows to developing countries had also resulted in lower flows of technology. His country had taken important steps and greatly improved the environment for foreign investment and the transfer of technology since the adoption of an open policy in 1978. Thus the national economy had been promoted by attracting a great deal of advanced technology through foreign investment. A series of policies and measures had been promulgated in 1992 aimed at turning China into a "socialist market economy", which would no doubt provide a much better environment for foreign investment and the transfer of technology.

53. He considered that the investment and technology transfer to developing countries still suffered from some unfair practices which affected the degree of absorption of developing countries. These included discriminatory practices hampering the normal investment and technological activities, such as strong control and restrictions on the export of high technology. Exorbitant prices also impeded the absorptive capacity of developing countries. In his view, the transfer of technology and investment were beneficial to both the owner and the recipient of technology. Better conditions at the country level should be supplemented by a better global environment for investment and technology flows. In this regard, the work programme of the Working Group should include studies which would promote the improvement of the external environment for investment and technology transfer.

54. The representative of Indonesia emphasized first the links between this and other Working Groups, underlining the complementarity among them. Concerning the work programme, he stressed that this Working Group should help to fill the gap now separating developed and developing countries in terms of technological capacity. The good will of all actors would be a fundamental condition to help the developing and the least developed countries in achieving their modernization process. The Working Group should identify the concrete role to be played by governments and the private sector in developed and developing countries as well as the tasks of international organizations. He emphasized that human resource development, with ample infrastructural support, had a fundamental role to play in raising technological capacity. In this respect, support and assistance from developed countries to developing and least developed countries would result in a more significant impact on development.

55. The representative of the Republic of Korea offered to share the experiences of his country in this field with the other participants of the Working Group. His country had developed its economy in the 1960s and 1990s

without much dependence on FDI, while foreign standardized technological know-how, had been acquired relatively easily through licence agreements. Now, in light of the difficulties in gaining access to more sophisticated foreign technology, the Republic of Korea was introducing new measures to enhance FDI, by changing finance policy and by changing ministerial procedures for technology inducement and for the intellectual property protection system. The Republic of Korea was interested in studying the impact of selected measures such as technology licensing and FDI on investment flows.

56. The representative of the United Kingdom underlined the importance of focusing the work programme on specific themes and issues. The work to be undertaken on transfer of technology should take due account of differences in the development levels of individual countries. The work programme should thus focus on formulating appropriate measures and policies for each stage of development.

57. The representative of Egypt, said that the Working Group should focus its efforts on what it could achieve within two years' time. In her view, it should concentrate on reviewing the prevailing conditions of transfer of technology and investment flows to developing countries. It should also look at the policies adopted by developed countries in order to help the transfer of technology to developing countries. The experiences of the home countries as well as the host countries would be relevant for the work of the Working Group. In this respect, the role of the private sector should be examined. Emphasis should be placed on the contribution that investment could make to the development of national technological capability. In this connection, the role of capital markets needed to be examined. For this purpose the Working Group could set up a group of experts. Another issue which in her opinion should be tackled was to identify the kind of enterprises in developing countries that were suitable for activities in the field of high technologies. Finally, there was a need for transfer of technology to developing countries on a preferential basis in certain sectors such as in health and food security.

58. The representative of Chile proposed that the issues to be considered for inclusion in the work programme of the Working Group should combine topics drawn from the note submitted by the secretariat and from those contained in the paper circulated informally by the United States delegation. He also suggested that international competitiveness be considered as a key concept for establishing priority among the issues of the work programme.

59. The representative of Argentina said that, in the light of the special conditions arising from structural adjustment efforts in the developing countries, the Working Group might wish to take up two topics. First, it might wish to focus on the creation of local technological capacities as a vital element for enhancing competitiveness. R & D efforts in developing countries concentrated on technology adaptation; only about 2 per cent of total R & D originated in developing countries. Developing countries needed to be informed of different mechanisms for stimulating investment and innovation. There was a need for conceptual work in this area, for example, work on intangible investments. He emphasized that developing countries would benefit greatly from an analysis of instruments applied by developed countries

and the impacts of such instruments on investment and innovation. He cited as examples of such instruments the United States tax credit system; the law introduced in Australia in 1986; and the United States recent Competitiveness Act.

60. A second area in which the Group might focus its work was the consideration of technology diffusion policies, which also affected competitiveness. In this context, it would be interesting to examine programmes and instruments such as the Microelectronics Application Programme in the United Kingdom, and many other policies in countries such as Japan, Germany and Sweden. Attention should also be paid to a necessary balance between protection of inventions and their diffusion, including the analysis of the role of non-voluntary licences.

61. The representative of the International Centre for Public Enterprises in Developing Countries referred to the problems which public enterprises in developing countries, including countries in transition, were facing in the implementation of current structural adjustment programmes and in privatizing their economies. He proposed that, with a view to advancing adjustment with a "development face", the Working Group examine the extent to which technology development problems were being taken into account in structural adjustment programmes. The Group might also consider the issue of intellectual property rights as part of investment packages. UNCTAD could have an important role to play, at the level of policy and coordination, in bringing together the investment and the science and technology-related institutions.

Action by the Ad Hoc Working Group

62. At its 4th (closing) meeting, on 29 January 1993, the Working Group adopted the draft work programme submitted by the Chairman as a result of informal consultations (TD/B/WG.5/L.2). (For the work programme, see annex I below.)

Statements made at the 4th (closing) meeting

63. The expert from the United States of America, speaking as a representative from the private sector, observed that the Working Group had had a rich exchange of views on a very crucial issue. He had been greatly encouraged by the spirit of partnership and understanding that had prevailed throughout the session.

64. He felt that the competitiveness issue raised by Chile was fundamental and had helped the Working Group to move from the abstract concepts discussed to economic reality. The technological challenge was not confined to developing countries, but was being faced by all firms in all countries, in an interdependent global economy. Some experts were now saying that competition was no longer between countries but rather between firms. Competition among firms stimulated strategic alliances and partnerships which benefited consumers in all countries through lower prices, greater choice, increased economic activity and more jobs, in addition to the technology that was exchanged. Technological change by innovation, imitation or skilled

adaptation was occurring day by day as firms tried to provide the goods and services their customers needed. All firms had to find a market niche and partnerships were crucial in that process. The focus on competitiveness was therefore the right focus - the real-world focus.

65. Many delegations had emphasized that technology was owned by firms. That was correct, but government business partnerships might encourage firms to come together in order to pass on technological capability to developing countries. Citing the case of a request by ASEAN for more technology to be transferred from the United States to the ASEAN countries, he recalled that the representatives of the United States Government had had to explain that the Government as such did not possess technology to transfer. After some years of discussion, a solution had been found which at least encouraged the transfer of technology: this was the creation of a United States/ASEAN Institute for Technological Exchange. This institution was still making a very great effort to introduce United States companies - primarily medium-sized companies - to the opportunities in the ASEAN market. He outlined a number of activities and events which had been organized within this framework in order to attract small- and medium-sized enterprises in the United States. Interestingly these missions were financed by contributions from large United States multinational companies.

66. With regard to training as an important factor, he observed that the reported example of an institute set up jointly by an institute of the Government of Malaysia and Hewlett Packard to develop a computer-integrated manufacturing applications laboratory in Malaysia showed that when investment was attracted training came with it. That training then enhanced the usefulness of the technology transferred. The result was felt to be a real contribution to enabling Malaysian industry to adopt the latest manufacturing techniques, and a significant boost to the Government's drive to achieve developed nation status.

67. Finally, with regard to small- and medium-sized industries, he noted that over 1,000 Thai companies, many of which were 100 per cent owned by Thai interests, were suppliers to the major companies that entered the country. In this way, the medium-sized firms often became very important suppliers and subsequently they began to export themselves as they developed their skills and found their niche in the international market.

68. In conclusion, he expressed the view that the Working Group was set on a very practical course and that the companies he represented would be interested in participating further in this work and in enhancing in a practical way the transfer of technology to the developing countries.

69. The Deputy to the Secretary-General of UNCTAD expressed the profound satisfaction felt by the secretariat at the significant results achieved by the Working Group. The work programme just adopted was both ambitious and realistic. The areas selected - international competitiveness, technological capability-building, and the issue of environmentally sound technologies - were central to the overall concerns of UNCTAD. The work programme was innovative and bid fair to open up new horizons in several areas. It was particularly heartening to see that the activity to the Working Group included an exchange of experiences based on country case studies which would take account of the different levels of technological development, geographical

balance and other special circumstances affecting the various countries. This approach was truly in the spirit of the Cartagena Commitment and the secretariat would do everything to facilitate this work. However, the success of this work relied heavily on countries' volunteering to undertake national studies. He was confident that many countries would do so, for the very fact that over 30 representatives from capitals had participated in the first session of the Working Group was a clear sign of the interest shown by governments in the subjects of investment and technology transfer. The cooperation and good working atmosphere visible during the first session gave good grounds for optimism.

70. The Chairman said that the work programme just adopted represented a very good start to the work to be done by the Working Group. A good spirit of cooperation had prevailed at the first session and the meetings had benefited from the participation of experts from the capitals. He expressed appreciation for the offer made by one delegation to organize, in the summer of 1993, a seminar on the transfer and development of environmentally sound technologies, to which developing countries would be invited on a selective basis. This was a very encouraging sign and he hoped that other countries - whether developed, developing or in transition to a market-economy system - would follow suit.

71. In tackling the task which lay ahead, he intended to seek the cooperation of the Bureau of the Working Group. He had already consulted the secretariat on launching the work and participants would soon be hearing from the secretariat about initiating country case studies, keeping pace with the work to be done by the secretariat, with a view to making good preparations for the second session.

## Chapter II

## ORGANIZATIONAL MATTERS

### A. Opening of the session

72. The first session of the Ad Hoc Working Group was opened on 25 January 1993 by the Deputy to the Secretary-General of UNCTAD, who made an introductory statement (see paras. 2-4 above).

### B. Election of officers

(Agenda item 1)

73. At its first meeting, on 25 January 1993, the Ad Hoc Working Group elected its officers as follows*:

| | | |
|---|---|---|
| Chairman: | Mr. Masafumi Nagao | (Japan) |
| Vice Chairmen: | Mr. Paul Pennell Buck | (United Kingdom of Great Britain and Northern Ireland) |
| | Mr. Syed Jamaluddin | (Bangladesh) |
| | Mr. Euvgeni Manakine | (Russian Federation) |
| | Mr. Msuya Mangachi | (United Republic of Tanzania) |
| | Mr. Soenaryo Danusaputro | (Indonesia) |
| Rapporteur: | Mr. Carlos Correa | (Argentina) |

### C. Adoption of the agenda and organization of work

(Agenda item 2)

74. At the same meeting, the Working Group adopted the provisional agenda circulated by the UNCTAD secretariat (TD/B/WG.5/1). The agenda for the first session therefore read as follows:

1. Election of officers
2. Adoption of the agenda and organization of work
3. Establishment of the work programme of the Working Group
4. Provisional agenda for the second session of the Working Group
5. Other business
6. Adoption of the report of the Working Group to the Board.

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* In accordance with the decision taken by the Trade and Development Board at the first part of its thirty-ninth session, the officers elected at the first session of the Ad Hoc Working Group are to remain in office for the duration of the life of the Working Group.

D. Provisional agenda for the second session of the Working Group

(Agenda item 4)

75. At its 4th (closing) meeting, on 29 January 1993, the Working Group approved the provisional agenda for its second session (TD/B/WG.5/L.3). (For the provisional agenda, see annex II.)

76. Regarding the timing of the second session, which under paragraph 9 of the work programme (cf. annex I), was scheduled to be convened towards the end of 1993, the Working Group agreed that the question of determining the exact date of the session should be referred to the Group on Calendar Matters.

E. Adoption of the report of the Working Group to the Board

(Agenda item 6)

77. Also at its closing meeting, the Working Group adopted the draft report on its first session (TD/B/WG.5/L.1 and Add.1), with minor amendments, and authorized the Rapporteur to complete the final report as appropriate.

Annex I

## WORK PROGRAMME OF THE AD HOC WORKING GROUP*

1. Pursuant to "A New Partnership for Development: the Cartagena Commitment", adopted at the eighth session of the Conference, the Ad Hoc Working Group agreed, on the basis of Board decision 398 (XXXVIII) which sets out in annex C the terms of reference of the Ad Hoc Working Group on Interrelationship between Investment and Technology Transfer, on the following work programme:

### I. OBJECTIVES OF THE EXERCISE

2. In accordance with paragraph 6 of the terms of reference, the output of the work by the Ad Hoc Working Group is envisaged as a consensus-building and action-oriented process and as a major report on investment and technology and on how related factors influence technological capability-building and international competitiveness in the process of economic development. By examining the identified issues and summarizing and analysing relevant empirical evidence, the report should address the concerns of developing countries, particularly the least developed countries, and countries undergoing the process of transition to market economy. The report should reflect, inter alia, (i) the results of discussions of meetings within the Ad Hoc Working Group; and (ii) country case studies leading to identification of policies which enhance and improve international competitiveness of countries. The Ad Hoc Working Group should also identify for consideration areas in which cooperation should be strengthened.

### II. SPECIFIC ISSUES

3. The following three issues constitute the components of the unifying theme of the interrelationship between investment and technology transfer. The elements listed under each issue will help to characterize the nature of deliberations and discussions during meetings designated in the work programme of the Ad Hoc Working Group. In addition they are intended to guide the collection and review of existing studies and the execution and analysis of country case studies.

4. The Ad Hoc Working Group will examine and discuss:

A. Investment flows, transfer of technology and competitiveness:

(a) Various commercial channels for technology transfer, including modes of investment-related technology transfer as well as the framework of such transfer, including the protection of intellectual property rights;

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* As adopted by the Ad Hoc Working Group at its 4th (closing) meeting, on 29 January 1993.

(b) Transfer of technology by and to small- and medium-sized enterprises as well as larger multinational corporations;

(c) Actions that countries may take to increase their capacity for the creation, adaptation and upgrading of technology in order, inter alia, to promote investment and technology flows;

(d) Impacts of new and emerging technologies on the configurations of investment, technology flows and competitiveness;

(e) Policies and mechanisms for facilitating technology transfer and cooperation between and among firms, research institutes and universities involving all countries, particularly the least developed countries;

(f) Aspects of technology transfer and development in countries undertaking structural adjustment programmes.

B. Technological capability-building in developing countries, particularly the least developed countries, and in countries undergoing the process of transition to market economy:

(a) Process of technological capability-building in the spectrum ranging from evaluation to acquisition and development of technology;

(b) Innovative mechanisms for financial resource mobilization for facilitating the transfer of technologies;

(c) The transfer and development of industrial and agricultural technologies of critical importance to developing countries;

(d) Human resource development and the role of research and development (R & D) in technological capability-building, the utilization of R & D results by the productive sector and the opportunity for international cooperative arrangements.

C. Transfer and development of environmentally sound technologies:

(a) Issues involved in the generation, transfer and diffusion of environmentally sound technologies which have an impact on competitiveness and development;

(b) Policies and measures for the promotion, development, dissemination and financing of environmentally sound technologies, particularly in developing countries, taking into account the need to provide incentives to innovators that promote research in and development of these technologies.

## III. ORGANIZATION OF WORK

5. Coordination for the implementation of the Work Programme:

- The members of the Bureau of the Ad Hoc Working Group on Interrelationship between Investment and Technology Transfer or their representatives in Geneva shall coordinate the implementation of activities foreseen in the present work programme.

6. A workshop will be held on the transfer and development of environmentally sound technologies.

7. Inputs by the UNCTAD secretariat:

(a) Review and analysis of the existing literature and other materials on technology and investment-related questions, including on technology indicators;

(b) Review of existing work of the United Nations system and selected non-governmental organizations dealing with investment-related technology issues;

(c) Legal materials - update and expand the 1982 UNCTAD study entitled, "Compilation of legal materials dealing with the transfer and development of technology." (TD/B/C.6/81 of 4 August 1982.)

8. Method of work:

(a) Exchange of national experiences based on country case studies. Common methodologies and approaches shall be encouraged in order to facilitate comparability of results (see annex). Country case studies will be solicited on a voluntary basis keeping in mind a geographical balance and the diversity of situations and experiences. The Chairman, assisted by the members of the Bureau of the Ad Hoc Working Group and in consultation with the Secretary-General of UNCTAD, will make the solicitations for case studies, formulate a timetable and develop detailed outlines for the studies;

(b) Discussions by the Ad Hoc Working Group;

(c) Review and analysis of existing relevant literature and of work carried out in other institutions.

9. Schedule of work:

| | | |
|---|---|---|
| (a) | Workshop on the transfer and development of environmentally sound technologies | Summer 1993 |
| (b) | Second session of the Ad Hoc Working Group, including presentation and discussion of preliminary or final country case studies | End of 1993 |
| (c) | Finalization of the report of the Ad Hoc Working Group (third session), including presentation and discussion of final country case studies | Spring 1994 |

## Annex

Country case studies must be differentiated in order to take into account the countries' diverse levels of technological sophistication and other special circumstances. However, in order to facilitate meaningful comparison of completed case studies, the following areas might be covered:

Government policies: Policies which increase investment, commercial technology transfer and diffusion, including tax structure, protection of intellectual property rights, incentives, and legal structure (i.e. dispute settlement mechanisms), as well as foster the development of basic infrastructure.

Human resources policies: Policies which improve a country's absorption capacity and development of endogenous capability, particularly training and education. Examples of ongoing cooperative efforts between the host government and multilateral/international organizations should receive special attention.

Enterprise sectors: Specific examples of participation by firms in the growth of investment (both foreign and domestic), particularly small- and medium-sized firms, and the role of technology in this growth.

In reviewing the above issues, emphasis should be placed on examining different types of technology and sources of technology transfer.

Annex II

PROVISIONAL AGENDA FOR THE SECOND SESSION OF THE AD HOC WORKING GROUP*

1. Adoption of the agenda and organization of work

2. Interrelationship between investment and technology transfer:

   (a) Investment flows, transfer of technology and competitiveness;

   (b) Technological capacity-building in developing countries, particularly the least developed countries, and in countries undergoing the process of transition to market-economy;

   (c) Transfer and development of environmentally sound technologies

(The discussion will be based on the presentation of preliminary or final country case studies and other relevant reports.)

3. Provisional agenda for the final (third) session of the Working Group

4. Other business

5. Adoption of the report of the Working Group to the Trade and Development Board.

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* As approved by the Ad Hoc Working Group at its 4th (closing) meeting, on 29 January 1993.

## Annex III

**PROPOSALS FOR THE WORK PROGRAMME**

**Paper circulated informally by the delegation of the United States of America**

**Aim: To meet all of the objectives of the Working Group's terms of reference, to carry out work that is helpful to member countries and that can be completed during the term of the Ad Hoc Working Group, and to minimize the need for additional resources.**

**Meetings of the Working Group: The work of the Working Group should be accomplished in two meetings:**

**Autumn 1993 meeting - views of recognized authorities on factors in technology transfer and development.**

**Internationally-recognized authorities in the field of technology transfer should be invited from governments, international and non-governmental organizations, academia, and the private sector to present their views on factors affecting the transfer, absorption and generation of technology. Discussions should emphasize how countries can enhance the climate for technology transfer. Prior to the meeting, governments would submit to the secretariat a list of representatives from the private sector, governments, international organizations and academia who should be specifically invited to prepare written and/or oral presentations.**

**Spring 1994 meeting - member countries could share their national experiences, including their own accomplishments in encouraging technology transfer. This could include a discussion of benefits gained as a result of enhancing their domestic legal protection for foreign investment, licensing and intellectual property, as well as minimizing factors which had previously inhibited technology transfer. Sharing experiences could make a significant contribution to international understanding. The meeting would be most useful with the participation of the broadest possible range of experiences and geographical distribution.**

**Compilation of materials: it would be useful for member countries to contribute materials to aid in the discussions at the Working Group meetings. Two studies are proposed:**

**Legal materials - update and expand the 1982 UNCTAD study (TD/B/C.6/81, 4 August 1982), entitled, "Compilation of Legal Materials dealing with the Transfer and Development of Technology". The survey should be as comprehensive as possible, based on questionnaires to member countries, of existing national laws, rules and regulations pertaining to the transfer and**

development of technology. For purposes of this working group, the survey could be broadened to include bilateral, regional and multilateral agreements which provide for and facilitate the transfer of technology.

Literature, including studies done by other international organizations, such as the OECD, and the World Bank, and articles by experts, on technology transfer with links to trade, investment, intellectual property rights, and other factors. Work on the survey could be aided by questionnaires to member countries, and to international organizations and non-governmental organizations, seeking the most recent publications on topics relating to the terms of reference.

## Annex IV

## MEMBERSHIP AND ATTENDANCE*

1. The following States members of UNCTAD, members of the Ad Hoc Working Group, were represented at the session:

Algeria
Argentina
Austria
Bangladesh
Brazil
Chile
China
Colombia
Côte D'Ivoire
Croatia
Cuba
Czech Republic
Democratic People's Republic of Korea
Denmark
Egypt
Finland
France
Germany
Ghana
Greece
Hungary
Indonesia
Italy
Japan
Lebanon
Libyan Arab Jamahiriya
Mexico
Morocco
Myanmar
Netherlands
Nigeria
Norway
Philippines
Republic of Korea
Romania
Russian Federation
Saudi Arabia
Senegal
Slovak Republic
Spain
Sweden
Switzerland
Turkey
United Kingdom of Great Britain and Northern Ireland
United Republic of Tanzania
United States of America
Venezuela
Zambia
Zimbabwe

2. The following other States members of UNCTAD, not members of the Ad Hoc Working Group, were represented as observers at the session:

Afghanistan
Australia
Belgium
Bolivia
Dominica
Equatorial Guinea
Ethiopia
India
Iran (Islamic Republic of)
Ireland
Madagascar
Malaysia
Nepal
Paraguay
Peru
Portugal
Qatar
Sri Lanka
Thailand
Uruguay

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* For the list of participants see TD/B/WG.5/INF.1

3. The Economic Commission for Europe was represented at the session.

4. The following specialized and related agencies were represented at the session:

International Labour Organisation
World Bank
International Monetary Fund
United Nations Industrial Development Organization

5. The following intergovernmental organizations were represented at the session:

European Economic Community
International Centre for Public Enterprises in Developing Countries
League of Arab States
Organization of African Unity

6. The following non-governmental organizations were represented at the session:

General Category

International Chamber of Commerce
World Assembly of Small and Medium Enterprises
World Federation of United Nations Associations

Special Category

Licensing Executives Society International
World Association of Industrial and Technological Research Associations

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